Figure 1: Nucleotide sequence comparison

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KETO2.seq   ATGCAGCTAGCAGCGACAGTAATGTTGGAGCAGCTTACCGGAAGCGCTGAGGCACTCAAGGAGAAGGAGAAGGAGGTTGCAGGCAGCTCTGACGTGTTGC 100
X86782.seq  ATGCAGCTAGCAGCGACAGTAATGTTGGAGCAGCTTACCGGAAGCGCTGAGGCACTCAAGGAGAAGGAGAAGGAGGTTGCAGGCAGCTCTGACGTGTTGC 100

KETO2.seq   GTACATGGGCGACCCAGTACTCGCTTCCGTCAGAGGAGTCAGACGCGGCCCGCCCGGGACTGAAGAATGCCTACAAGCCACCACCTTCCGACACAAAGGG 200
X86782.seq  GTACATGGGCGACCCAGTACTCGCTTCCGTCAGAAGAGTCAGACGCGGCCCGCCCGGGACTGAAGAATGCCTACAAGCCACCACCTTCCGACACAAAGGG 200

KETO2.seq   CATCACAATGGCGCTAGCTGTCATCGGCTCCTGGGCCGCAGTGTTCCTCCACGCCATTTTTCAAATCAAGCTTCCGACCTCCTTGGACCAGCTGCACTGG 300
X86782.seq  CATCACAATGGCGCTACGTGTCATCGGCTCCTGGGCCGCAGTGTTCCTCCACGCCATTTTTCAAATCAAGCTTCCGACCTCCTTGGACCAGCTGCACTGG 300

KETO2.seq   CTGCCCGTGTCAGATGCCACAGCTCAGCTGGTTAGCGGCAGCAGCAGCCTGCTGCACATCGTCGTAGTATTCTTTGTCCTGGAGTTCCTGTACACAGGCC 400
X86782.seq  CTGCCCGTGTCAGATGCCACAGCTCAGCTGGTTAGCGGCACGAGCAGCCTGCTCGACATCGTCGTAGTATTCTTTGTCCTGGAGTTCCTGTACACAGGCC 400

KETO2.seq   TTTTTATCACCACGCATGATGCTATGCATGGCACCATCGCCATGAGAAACAGGCAGCTTAATGACTTCTTGGGCAGAGTATGCATCTCCTTGTACGCCTG 500
X86782.seq  TTTTTATCACCACGCATGATGCTATGCATGGCACCATCGCCATGAGAAACAGGCAGCTTAATGACTTCTTGGGCAGAGTATGCATCTCCTTGTACGCCTG 500

KETO2.seq   GTTTGATTACAACATGCTGCACCGCAAGCATTGGGAGCACCACAACCACACTGGCGAGGTGGGCAAGGACCCTGACTTCCACAGGGGAAACCCTGGCATT 600
X86782.seq  GTTTGATTACAACATGCTGCACCGCAAGCATTGGGAGCACCACAACCACACTGGCGAGGTGGGCAAGGACCCTGACTTCCACAGGGGAAACCCTGGCATT 600

KETO2.seq   GTGCCCTGGTTTGCCAGCTTCATGTCCAGCTACATGTCGATGTGGCAGTTTGCGCGCCTCGCATGGTGGACGGTGGTCATGCAGCTGCTGGGTGCGCCAA 700
X86782.seq  GTGCCCTGGTTTGCCAGCTTCATGTCCAGCTACATGTCGATGTGGCAGTTTGCGCGCCTCGCATGGTGGACGGTGGTCATGCAGCTGCTGGGTGCGCCAA 700

KETO2.seq   TGGCGAACCTGCTGGTGTTCATGGCGGCCGCGCCCATCCTGTCCGCCTTCCGCTTGTTCTACTTTGGCACGTACATGCCCCACAAGCCTGAGCCTGGCGC 800
X86782.seq  TGGCGAACCTGCTGGTGTTCATGGCGGCCGCGCCCATCCTGTCCGCCTTCCGCTTGTTCTACTTTGGCACGTACATGCCCCACAAGCCTGAGCCTGGCGC 800

KETO2.seq   CGCGTCAGGCTCTTCACCAGCCGTCATGAACTGGTGGAAGTCGCGCACTAGCCAGGCGTCCGACCTGGTCAGCTTTCTGACCTGCTACCACTTCGACCTG 900
X86782.seq  CGCGTCAGGCTCTTCACCAGCCGTCATGAACTGGTGGAAGTCGCGCACTAGCCAGGCGTCCGACCTGGTCAGCTTTCTGACCTGCTACCACTTCGACCTG 900

KETO2.seq   CACTGGGAGCACCACCGCTGGCCCTTTGCCCCCTGGTGGGAGCTGCCCAACTGCCGCCGCCTGTCTGGCCGAGGTCTGGTTCCTGCCTAG           990
X86782.seq  CACTGGGAGCACCACCGCTGGCCCTTCGCCCCCTGGTGGGAGCTGCCCAACTGCCGCCGCCTGTCTGGCCGAGGTCTGGTTCCTGCCTAG           990
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Figure 2: Protein sequence comparison

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KETO2.pro   M Q L A A T V M L E Q L T G S A E A L K E K E K E V A G S S D V L R T W A T Q Y S L P S E E S D A A  50
X86782.pro  M Q L A A T V M L E Q L T G S A E A L K E K E K E V A G S S D V L R T W A T Q Y S L P S E E S D A A  50

KETO2.pro   R P G L K N A Y K P P P S D T K G I T M A L A V I G S W A A V F L H A I F Q I K L P T S L D Q L H W  100
X86782.pro  R P G L K N A Y K P P P S D T K G I T M A L R V I G S W A A V F L H A I F Q I K L P T S L D Q L H W  100

KETO2.pro   L P V S D A T A Q L V S G S S S L L H I V V V F F V L E F L Y T G L F I T T H D A M H G T I A M R N  150
X86782.pro  L P V S D A T A Q L V S G T S S L L D I V V V F F V L E F L Y T G L F I T T H D A M H G T I A M R N  150

KETO2.pro   R Q L N D F L G R V C I S L Y A W F D Y N M L H R K H W E H H N H T G E V G K D P D F H R G N P G I  200
X86782.pro  R Q L N D F L G R V C I S L Y A W F D Y N M L H R K H W E H H N H T G E V G K D P D F H R G N P G I  200

KETO2.pro   V P W F A S F M S S Y M S M W Q F A R L A W W T V V M Q L L G A P M A N L L V F M A A A P I L S A F  250
X86782.pro  V P W F A S F M S S Y M S M W Q F A R L A W W T V V M Q L L G A P M A N L L V F M A A A P I L S A F  250

KETO2.pro   R L F Y F G T Y M P H K P E P G A A S G S S P A V M N W W K S R T S Q A S D L V S F L T C Y H F D L  300
X86782.pro  R L F Y F G T Y M P H K P E P G A A S G S S P A V M N W W K S R T S Q A S D L V S F L T C Y H F D L  300

KETO2.pro   H W E H H R W P F A P W W E L P N C R R L S G R G L V P A                                          329
X86782.pro  H W E H H R W P F A P W W E L P N C R R L S G R G L V P A                                          329
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Figure 3: Construct for the overexpression of the ketolase (β-C-4-oxygenase) protein from *H. pluvialis* using rbcS transit peptide from pea under the control of the d35S promoter (Tagetes transformation construct)

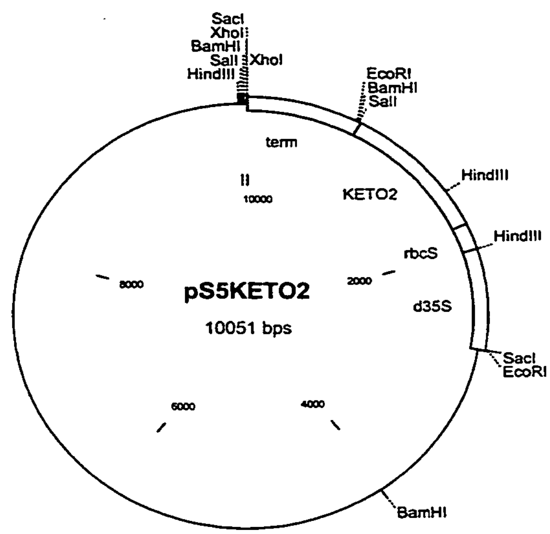


Figure 4: Construct pS5AP3PKETO2 for the overexpression of the ketolase (β-C-4-oxygenase) proteins from H. pluvialis using rbcS transit peptide from pea under the control of the AP3P promoter (Tagetes transformation construct) .

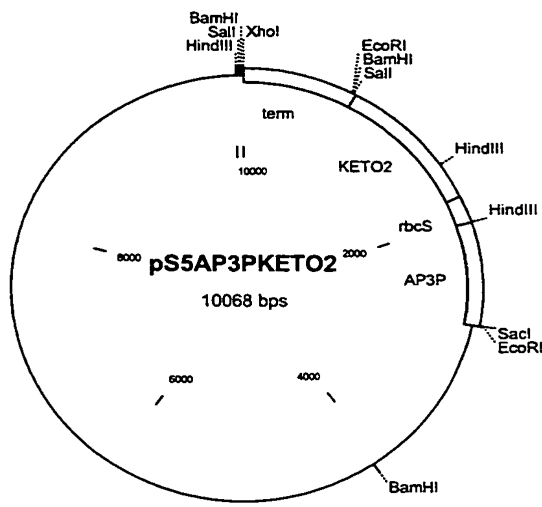


Figure 5

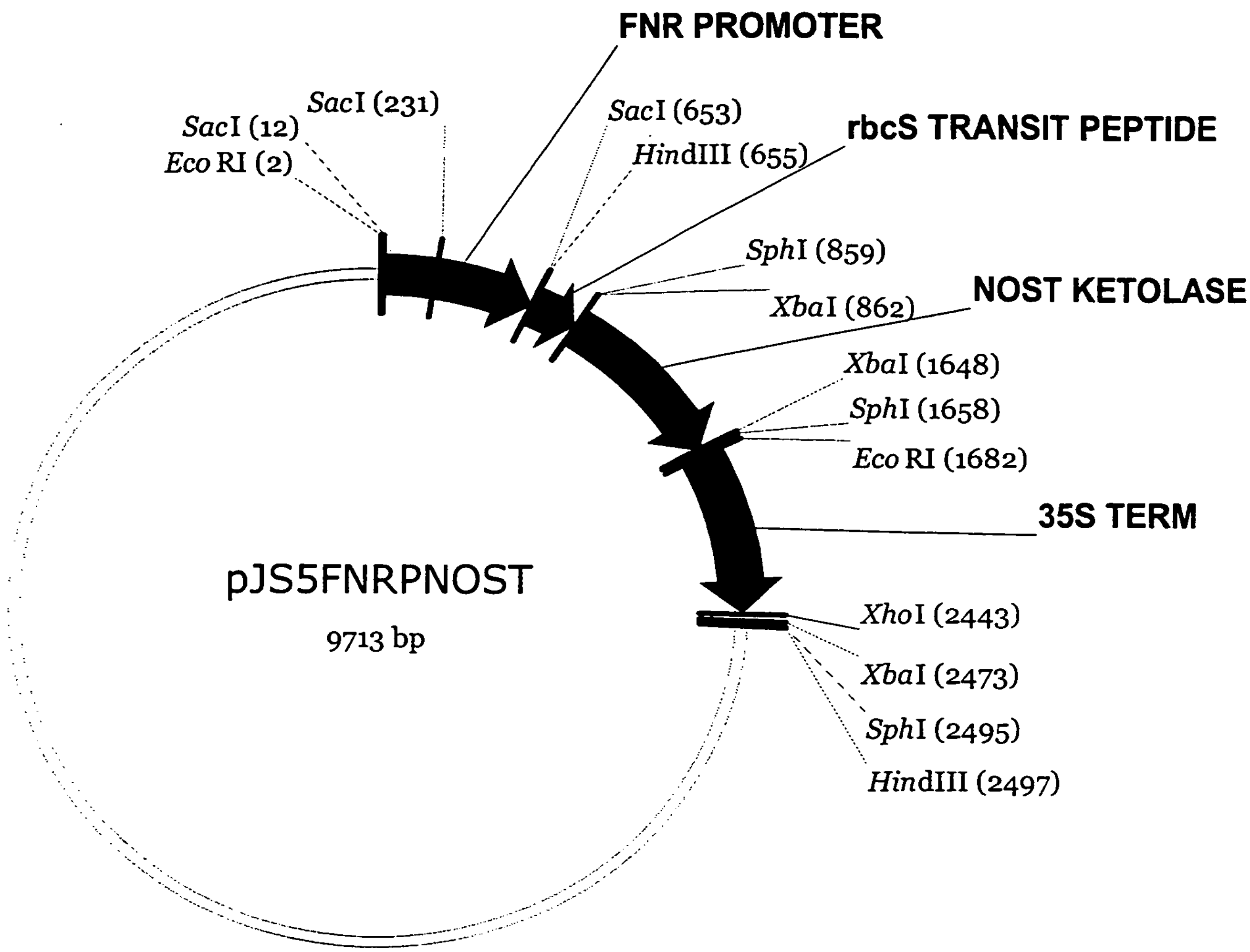

FNR PROMOTER
SacI (231)
SacI (12)
Eco RI (2)
SacI (653)
HindIII (655)
rbcS TRANSIT PEPTIDE
SphI (859)
XbaI (862)
NOST KETOLASE
XbaI (1648)
SphI (1658)
Eco RI (1682)
35S TERM
pJS5FNRPNOST
9713 bp
XhoI (2443)
XbaI (2473)
SphI (2495)
HindIII (2497)

Figure 6

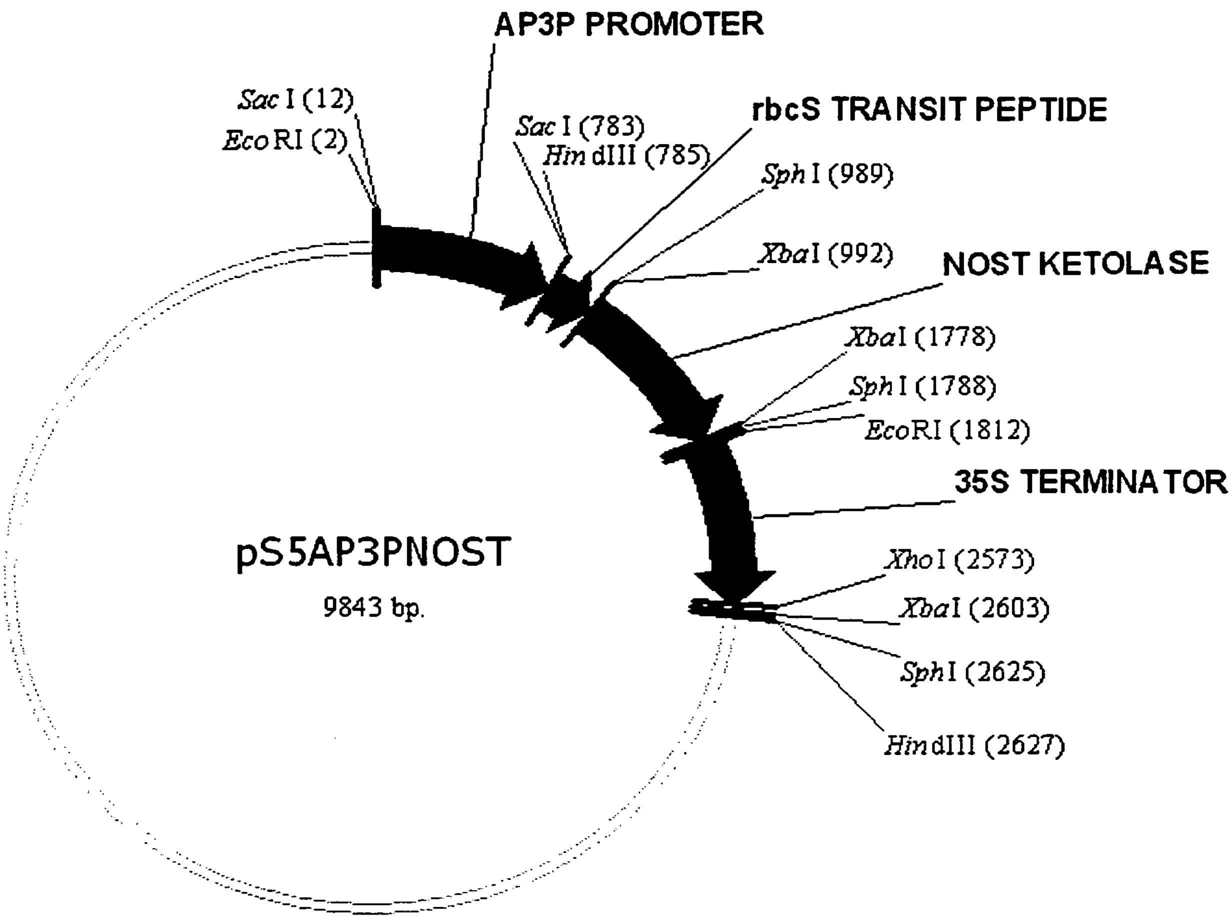
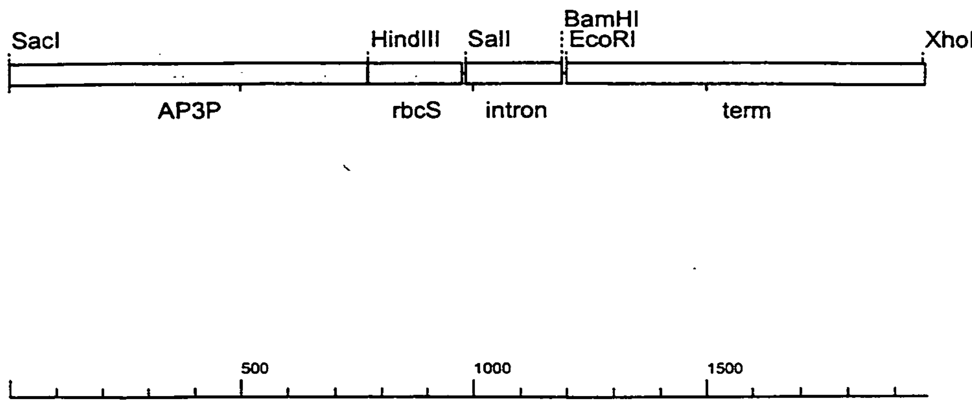
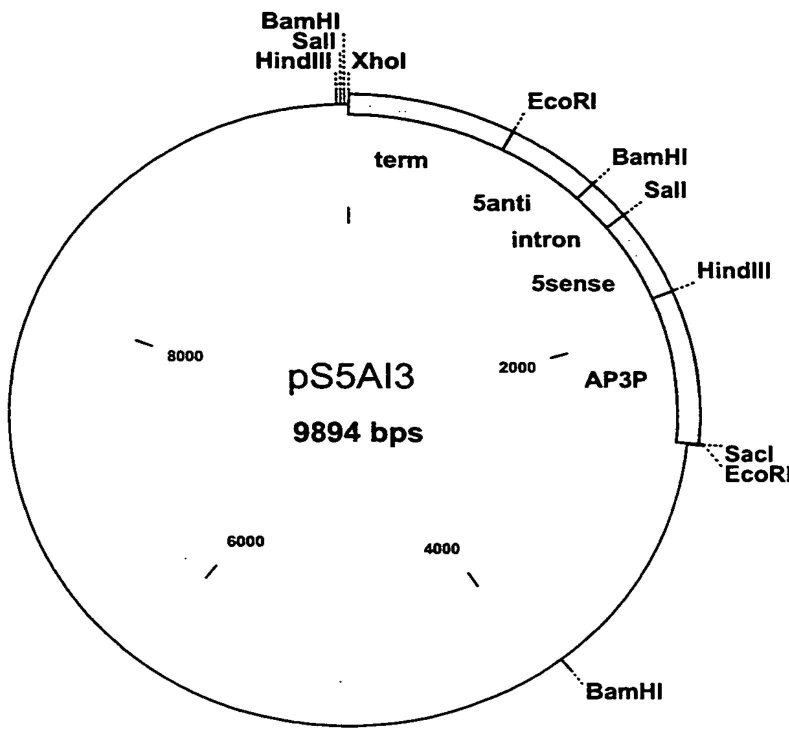

AP3P PROMOTER
Sac I (12)
EcoRI (2)
Sac I (783)
HindIII (785)
rbcS TRANSIT PEPTIDE
SphI (989)
XbaI (992)
NOST KETOLASE
XbaI (1778)
SphI (1788)
EcoRI (1812)
35S TERMINATOR
pS5AP3PNOST
9843 bp.
XhoI (2573)
XbaI (2603)
SphI (2625)
HindIII (2627)

Figure 7: Cloning cassette for producing inverted-repeat expression cassettes for the flower-specific expression of epsilon-cyclase dsRNAs in Tagetes erecta



pJAI1 (1966 bps)

Figure 8: Expression vector for the flower-specific production of dsRNA transcripts comprising 5'-terminal fragments of the epsilon-cyclase cDNA (AF251016) under the control of the AP3P promoter



10/524647

Figure 9: Expression vector for the flower-specific production of dsRNA transcripts comprising 5'-terminal fragments of the epsilon-cyclase cDNA (AF251016) under the control of the CHRC promoter

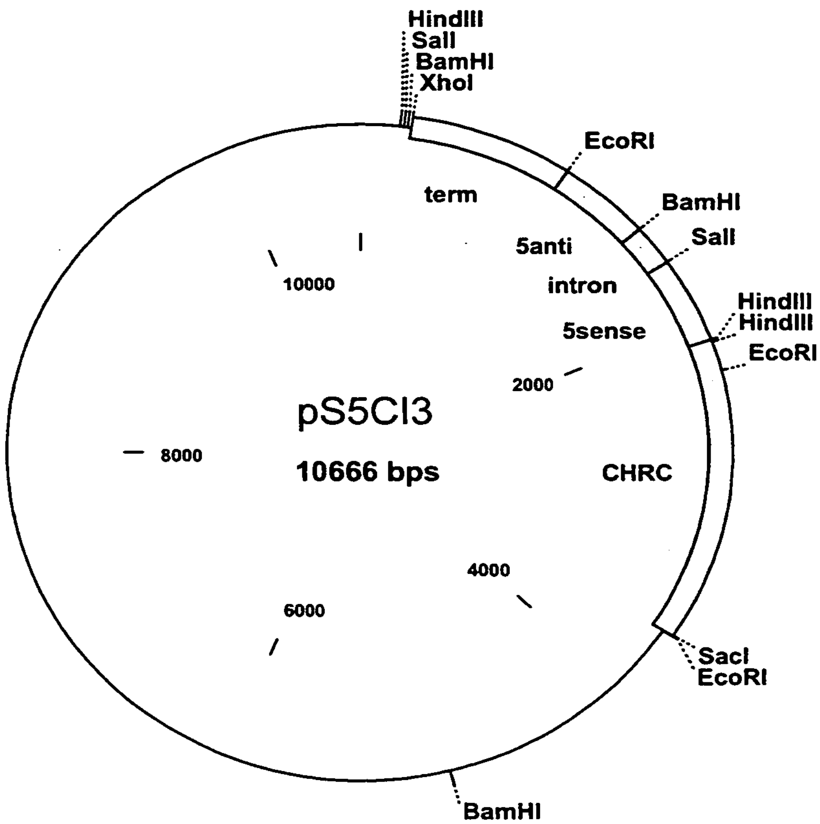


Figure 10: Expression vector for the flower-specific production of dsRNA transcripts comprising 3'-terminal fragments of the epsilon-cyclase cDNA (AF251016) under the control of the AP3P promoter

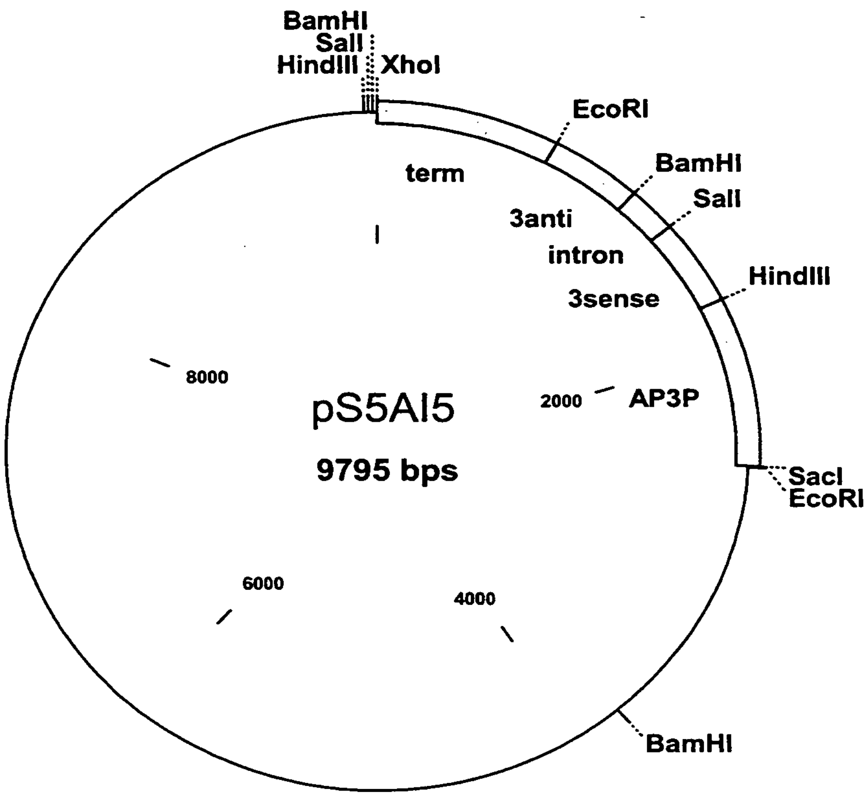
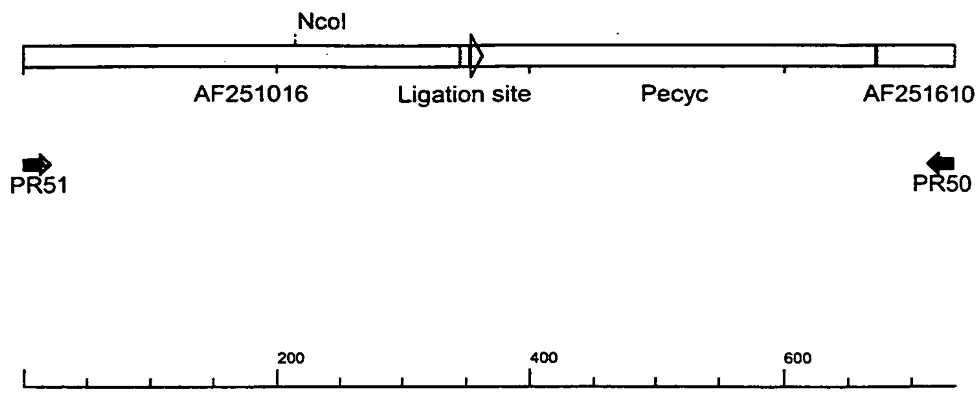


Figure 11: Inverse PCR amplicon which comprises the 312 bp fragment of the epsilon-cyclase promoter



ecycP-IPCR(734 bps)

Figure 12: TAIL PCR amplicon which comprises the 199 bp fragment of the epsilon-cyclase promoter

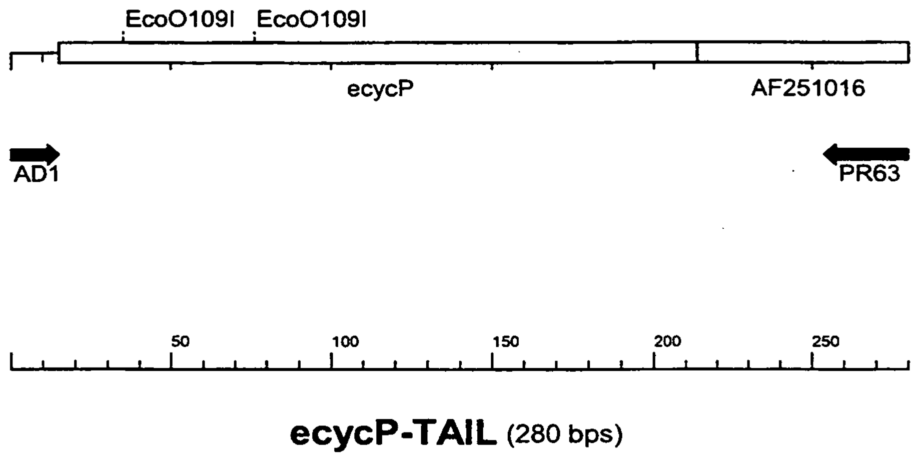


Figure 13: Expression vector for the flower-specific production of dsRNA transcripts comprising the 312 bp promoter fragment of epsilon-cyclase under the control of the AP3P promoter

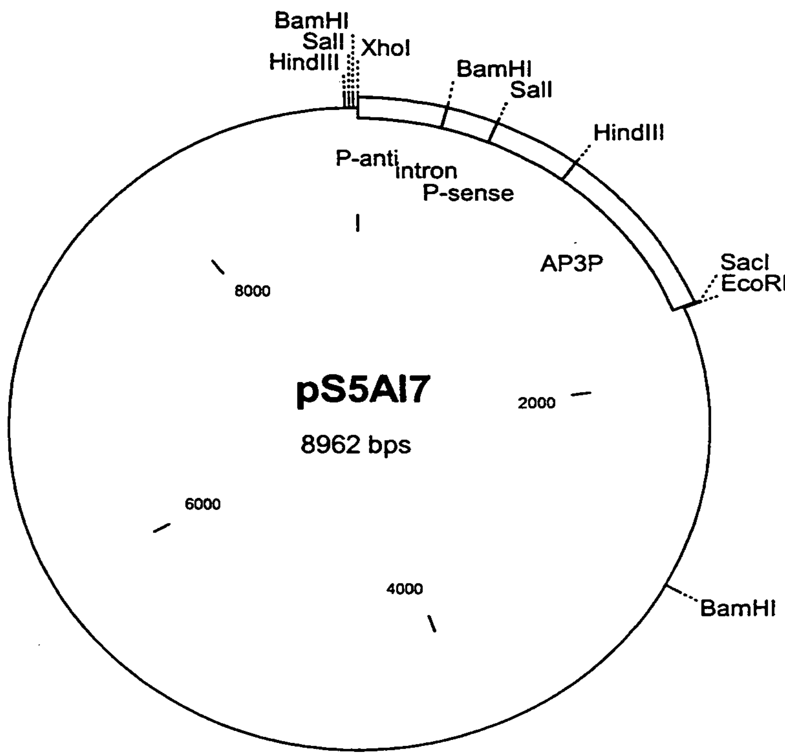
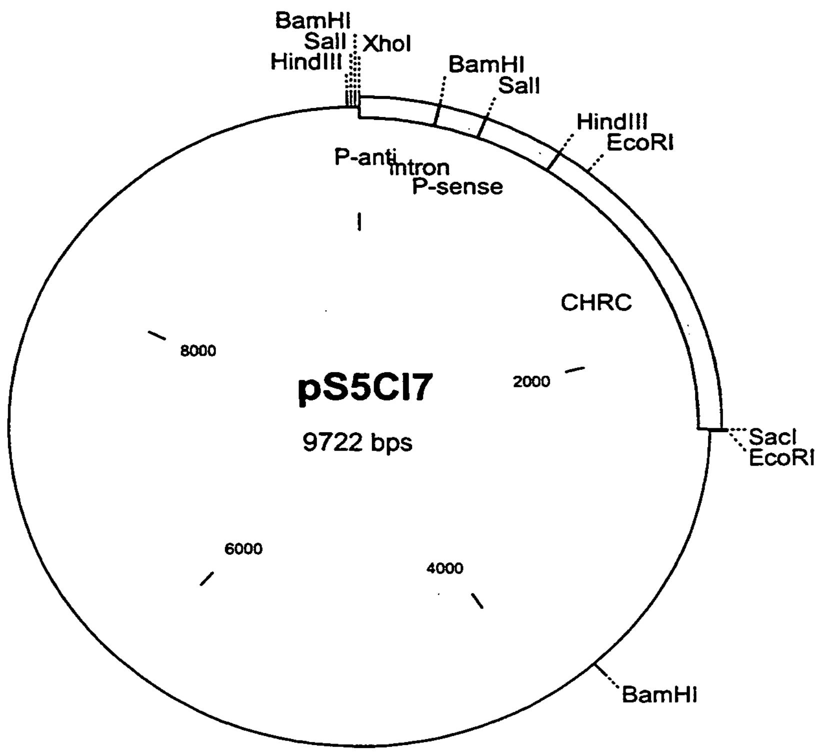


Figure 14: Expression vector for the flower-specific production of dsRNA transcripts comprising the 312 bp promoter fragment of epsilon-cyclase under the control of the CHRC promoter



10/524647

Figure 15: Expression vector for the flower-specific production of dsRNA transcripts comprising the 312 bp promoter fragment of epsilon-cyclase under the control not only of the AP3P promoter, but also the CHRC promoter